

R E M A R K S

Claims 18-40 are present in the application.

Claims 24 and 31 have been amended to overcome the rejection under 35 USC §112, second paragraph, set forth in the Official Action mailed November 21, 2001.

Claim 24 has been amended in an attempt to indicate that a desired size of the nanopores is known before hand and the particular carbide powder is selected to achieve the desired nanoporosity based on the recited relationship in the claim.

Attached hereto is a marked-up version of the changes made to the claims. The attached pages are captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

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By



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Amend claim 24 as follows:

--24. (amended) A method for producing a porous carbon article comprising the steps of:

[forming an intermediate body with transport pores having a size larger than 100 nm by shaping powders of at least one carbide of an element selected from the group consisting of Group III, IV, V and VI of Mendeleyv's Periodic System,]

[the carbide] selecting powders of at least one carbide of an element selected from the group consisting of Group III, IV, V and VI of Mendeleyv's Periodic System, the at least one carbide having physical and chemical constants to obtain a desired nanoporosity using the relationship:

$$X = Z \cdot (1-R) / R$$

where  $X$  = specified size of desired nanopores and  $X \leq 10$  nm, nm;

$$Z = 0.65 - 0.75 \text{ nm};$$

$$R = \nu M_c \rho_k / M_k \rho_c$$

where

$M_c$  - molecular mass of carbon, g/mole;

$M_k$  - molecular mass of the selected carbide, g/mole;

$\rho_k$  - density of the selected carbide, g/ccm;

$\rho_c$  - density of carbon, g/ccm;

$[N]_v$  - number of carbon atoms in carbide molecule;



forming an intermediate body with transport pores having a size larger than 100 nm by shaping the selected powders,

heat treating the intermediate body in a medium of gaseous hydrocarbon or hydrocarbon mixtures at a temperature exceeding the decomposition temperature for the hydrocarbon or hydrocarbons until the mass of the intermediate body has increased at least 3% thereby producing a work piece in the form of a rigid carbonaceous skeleton; and

thereafter thermochemically treating the work piece in a medium of a gaseous halogen to produce the porous carbon article having nanopores of a size X [less than 10 nm, and a predetermined volume and a predetermined distribution of the nanopores dependent on the intended use of the article].--

Amend claim 31 as follows:

--31. (amended) The method according to claim 24, wherein the [natural gas comprises a] mixture of hydrocarbons comprises a natural gas.--